

Math 0361

Practice Test 1

Simplify the expression:

1. $5[5+5(7-2)]$

$$\begin{aligned} & 5[5+25] \\ & 5[30] \\ & \boxed{150} \end{aligned}$$

2. $\frac{3+6(8-5)}{4^2+2} = \frac{3+18}{16+2} = \frac{21}{18}$

$$\frac{21 \div 3}{18 \div 3} = \boxed{\frac{7}{6}}$$

Evaluate the expression.

3. $x^2 - 5y + x$ when $x=20$ and $y=6$

$$20^2 - 5(6) + 20$$

$$400 - 30 + 20$$

$$370 + 20 = \boxed{390}$$

4. $\frac{x}{z} + 3y$ when $x=6$, $y=3$, and $z=2$

$$\frac{6}{2} + 3(3)$$

$$3 + 9 = \boxed{12}$$

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Practice Test 1

Simplify the expression:

1. $5[5+5(7-2)]$



$$5[5+25]$$

$$5[30]$$

$$\boxed{150}$$

2. $3 + \frac{6(8-5)}{4^2+2} = \frac{3+18}{16+2} = \frac{21}{18}$

$$\frac{21 \div 3}{18 \div 3} = \boxed{\frac{7}{6}}$$

Evaluate the expression.

3. $x^2 - 5y + x$ when $x=20$ and $y=6$

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4. $\frac{x}{z} + 3y$ when $x=6$, $y=3$, and $z=2$

$$\frac{6}{2} + 3(3)$$

$$3 + 9 = \boxed{12}$$

Simplify

5. $1m - 7m - 3m + 5$

$$-6m - 3m + 5$$

$$-9m + 5$$

6. $4(x+2) - 1(2x-7)$

$$4x + 8 - 2x + 7$$

$$2x + 15$$

7. Subtract $9x+10$ from $6x-10$

Write 2nd equation 1st: $6x - 10$

change signs

$$\begin{array}{r} 6x - 10 \\ -9x + 10 \\ \hline \end{array}$$

$$-3x - 20$$

8. Write the following phrase as an algebraic expression and simplify. Let x represent the unknown number.

Triple a number, minus the sum of number and three
parenthesis

$$3x - (x + 3)$$

$$3x - 1(x + 3)$$

$$3x - 1x - 3$$

$$2x - 3 \checkmark$$

Solve the equation:

9.

$$\begin{array}{r|l} x+2 & 4 \\ -2 & -2 \\ \hline x & 2 \end{array}$$

To get x alone
do opposite

$x = 2$

10.

$$\begin{aligned} -4(x+2) + 5x &= 12 \\ (-4x) - 8 + 5x &= 12 \\ 1x - 8 &= 12 \\ +8 \quad +8 \\ \hline 1x &= 20 \end{aligned}$$

11.

$$\begin{array}{r} -9x = 81 \\ -9 \quad -9 \\ \hline x = -9 \end{array}$$

divide by -9

12.

$$\begin{aligned} (7) \frac{3}{7} x &= -9(7) \text{ Get rid of fraction} \\ \frac{21}{7} x &= -63 \text{ by multiply both sides by 7} \\ \frac{3x}{3} &= \frac{-63}{3} \\ x &= -21 \end{aligned}$$

$$13. \quad 8y + 3(y-6) = 4(y+1) - 2$$

$$\begin{array}{rcl} \downarrow & & \downarrow \\ 8y + 3y - 18 & = & 4y + 4 - 2 \end{array}$$

$$\begin{array}{rcl} 11y - 18 & = & 4y + 2 \\ -4y & & -4y \end{array}$$

$$\begin{array}{rcl} 7y - 18 & = & 2 \\ +18 & & +18 \end{array}$$

$$\frac{7y}{7} = \frac{20}{7}$$

$$\boxed{y = \frac{20}{7}}$$

Letters
Left

Numbers
Right

Divide

$$14. \quad \frac{5x}{5} + \frac{4}{5} = \frac{-4}{5} \quad (5)$$

Multiply
5 on top

$$\left(\frac{10x}{5}\right) + \left(\frac{20}{5}\right) = \left(\frac{-20}{5}\right)$$

$$\begin{array}{rcl} 2x + 4 & = & -4 \\ -4 & & -4 \end{array}$$

$$\frac{2x}{2} = \frac{-8}{2}$$

$$\boxed{x = -4}$$

$$15. \quad \begin{array}{rcl} 0.7x - 1.6 & = & 0.5 \\ +1.6 & & +1.6 \end{array}$$

$$\begin{array}{rcl} 0.7x & = & 2.1 \\ 0.7 & & 0.7 \end{array}$$

$$\boxed{x = 3}$$

$$16. \quad \frac{(10)7x}{10} - \frac{1(10)}{5} = 4(10)$$

Multiply
Top by 10

$$\frac{70x}{10} - \frac{10}{5} = 40$$

$$\begin{array}{rcl} 7x - 2 & = & 40 \\ +2 & & +2 \end{array}$$

$$\frac{7x}{7} = \frac{42}{7}$$

$$\boxed{x = 6}$$

Using x as the unknown number, write the statement as an equation and then solve for x .

17.

Three times a number, minus 6, is equal to

two times a number, plus 7.

$$\begin{array}{r} 3x - 6 \\ - 2x \\ \hline \end{array} \quad \begin{array}{r} 2x + 7 \\ - 2x \\ \hline \end{array}$$

$$\begin{array}{r} x - 6 = 7 \\ + 6 \quad + 6 \\ \hline x = 13 \end{array}$$

$$\boxed{x = 13}$$

18. A 42 inch board is to be cut into three pieces so the second piece is twice as long as first piece and the third piece is 4 times as long as first piece. If x represents the length of first piece, find the lengths of all three pieces.

$$\underline{1st} + \textcircled{2nd} + \boxed{3rd} = 42$$

$$1x + 2x + 4x = 42$$

$$\frac{7x}{7} = \frac{42}{7}$$

$$\textcircled{x = 6}$$

$$1st = 6$$

$$2nd = 2(6) = 12$$

$$3rd = 4(6) = 24$$

19. A 17 foot piece of string is cut into two pieces so that the longer piece is 5 feet longer than the shorter piece. If the shorter piece is x feet long, find lengths of both pieces

$$1st + 2nd = 17$$

$$x + x + 5 = 17$$

$$\begin{array}{r} 2x + 5 = 17 \\ -5 \quad -5 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$(x = 6)$$

$$\begin{array}{l} 1st = 6 \checkmark \\ 2nd = 6 + 5 = 11 \checkmark \end{array}$$

20. The left and right page numbers of an open book are two consecutive integers whose sum is 455. Find these page numbers.

$$1st + 2nd = 455$$

$$x + x + 1 = 455$$

$$\begin{array}{r} 2x + 1 = 455 \\ -1 \quad -1 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{454}{2}$$

$$(x = 227)$$

consecutive means
odd 1

$$\begin{array}{l} 1st = 227 \checkmark \\ 2nd = 228 \checkmark \end{array}$$